

Exam Dates: Monday Lab: October 19

Tuesday Labs: October 13

Wednesday Lab: October 14

Thursday Labs: October 15

NOTE: DUE TO TIME LIMITATIONS THE EXAM MUST START AT THE START OF YOUR LAB SECTION.
ANYONE WHO IS LATE WILL RECEIVE A GRADE OF ZERO FOR THE EXAM.

Exam Format:Part 1: Rock Identification

- You will be expected to be able to identify all of the rocks we looked at in the lab.
- You may only use your test kit to assist you for this part of the quiz (NO tables or partners).
- I will provide you with a word bank of rock names, however I will NOT indicate which are sedimentary, igneous or metamorphic.
- The set-up will be similar to the first part of the minerals quiz. Samples will be placed on the desks and you will be asked to move around the room in a specified order. You will only be allowed to examine each sample once.

Part 2: Geologic Map Interpretation

- You will be given three small sets of rocks to identify and a sketch of the region where each of the rocks sets were collected from.
- You will be asked to describe the environment of formation for the given rocks (where? how?).
- You may use your lab manual, textbook and lecture notes to complete this portion of the quiz. You may also work together in groups.
- An example problem is provided on the back of this sheet.

Frequently Asked Questions:1. How can I tell the difference between an igneous, metamorphic and sedimentary rock?

- Look for mineral crystals. Both igneous and metamorphic rocks will have them. All but one of the metamorphic rocks you looked at was foliated, meaning they had some sort of banding or layering. So if there are mineral crystals and bands or layers it's metamorphic. If you just see mineral crystals it's igneous. The one exception was marble, which was a non-foliated, crystalline, metamorphic rock. Because marble contains calcite it will fizz (react to the HCl). None of your igneous rocks will fizz.
- Look for layers. Detrital sedimentary rocks will contain pieces of other rocks and often exhibit some sort of layering (because the sediments that make them up are usually deposited in layers). Foliated metamorphic rocks also exhibit layers, but remember they tend to contain mineral crystals or have other distinctive characteristics.
- Look for fossils. Only sedimentary rocks will contain fossils.

2. It fizzed when I put acid on it why isn't it limestone?

- Any rock that contains the mineral calcite will fizz, such as the metamorphic rock marble, and the sedimentary rocks fossiliferous limestone and chalk. Some detrital sedimentary rocks contain pieces of calcite rich rocks. For example, you can have a conglomerate made up of large, round pieces of limestone. It's still a conglomerate, because it's made up of large, round detrital pieces of other rocks. But it will fizz. Some other detrital sedimentary rocks contain calcite cement that holds the sediments together. For example, you can have a sandstone where the sand-size particles are cemented together with calcite. It's still a sandstone, because it's made of sand-size particles, but it will fizz. So be careful with you acid tests.

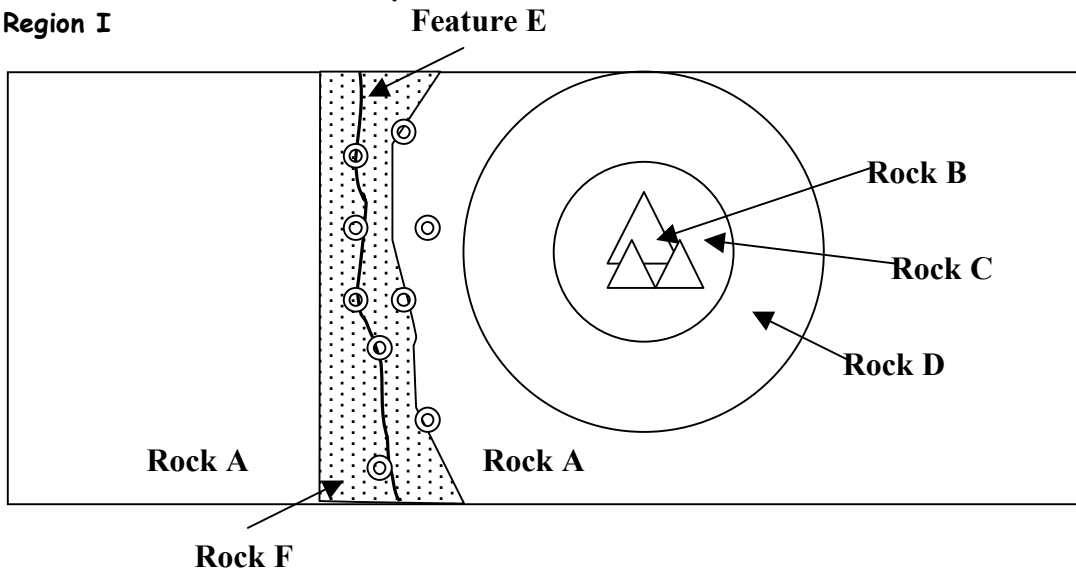
3. How can I tell the difference between shale, slate and phyllite?

- They are all layered rocks with no visible minerals. Shale is sedimentary and tends to break along its layers. It may also contain fossils. Slate is a harder than shale, shows better layering and is dull. Phyllite is also hard but exhibits a glossy sheen (like a high-gloss photograph). The best thing to do is lay them all side-by-side and see if you can spot the differences.

Study Boxes: Stop by my office or the lab to sign out a box of rocks the day before your exam (before 2:30).**Review Sessions:** Monday October 12th, 6:00pm, Bowers 346Tuesday October 13th, 7:00pm, Bowers 346Wednesday October 14th, 7:00pm, Bowers 346Last Minute Review Monday October 19th, 9:00am, Bowers 346

Example Environments of Formation Problem:

Map Region I



Mountains = \triangle (The shape of the symbol does not necessarily represent the true shape of the mountain.)
 Earthquakes = \odot

1. Identify the 4 rocks located in the map region.

(I have given you the rock names here; on the exam you will be given an actual rock sample and will need to determine what it is on your own.)

- A = (basalt)
- B = (gabbro)
- C = (marble)
- D = (limestone)
- F = (schist)

2. What type of plate boundary is Feature E?

3. Are the mountains in this region volcanic in origin? Circle one: YES NO
 If yes, what is/are the main hazard(s) associated with this type of volcano?
 If no, how were these mountains formed?

4. What type of metamorphism created the metamorphic rocks in the map region? Circle all that apply.

Regional metamorphism

Contact metamorphism

5. What is the parent rock for each of the metamorphic rocks in the map area. (Hint: Each metamorphic rock can only have one parent rock and it must have been present in the map area originally.)

Metamorphic Rock

Parent Rock